

What is claimed is:

1. A power circuit of a vehicular electronic control unit including a microprocessor for driving various electric loads in accordance with operation states of various input sensors and contents of a program memory, the power circuit comprising a constant voltage power circuit, an awakening timer circuit, and first and second power supply circuits each of which is supplied with power from a vehicle battery, wherein:

the constant voltage power circuit is supplied with power from the vehicle battery via the first or second power supply circuit;

the awakening timer circuit generates an awakening trigger signal upon a lapse of a prescribed time from a stop of power supply to the microprocessor;

the first power supply circuit comprises an output contact as a first opening/closing element and a coil for closing the output contact; and

the second power supply circuit comprises a second opening/closing element that is provided between the vehicle battery and the constant voltage power circuit and is closed in response to the awakening trigger signal.

2. A power circuit of a vehicular electronic control unit including a microprocessor that is supplied with power from a vehicle battery and drives various electric loads in accordance with operation states of various input sensors and contents of

a program memory, the power circuit comprising:

a constant voltage power circuit that is supplied with power from the vehicle battery via the first or second power supply circuit, and that supplies a prescribed regulated voltage to the microprocessor, devices accompanying the microprocessor including the program memory and a RAM for computation, and input/output interface circuits;

an awakening timer circuit that is supplied with power directly from the vehicle battery, and generates an awakening trigger signal upon a lapse of a prescribed time from a stop of power supply to the microprocessor;

a first power supply circuit that comprises a power relay having an output contact as a first opening/closing element provided between the vehicle battery and the constant voltage power circuit or between the vehicle battery and the various electric loads, and a coil for closing the output contact, and a reverse-blocking diode connected in series to the output contact, wherein the coil being energized when a power switch is turned on and kept energized by a power maintenance drive signal generated by the microprocessor even if the power switch is turned off; and

a second power supply circuit comprises a second opening/closing element that connects the vehicle battery and the constant voltage power circuit, and is closed in response to the awakening trigger signal and kept closed by a power

maintenance drive signal generated by the microprocessor, wherein the reverse-blocking diode is in such a connection relationship as to allow power supply from the first power supply circuit to the various electric loads and to prohibit power supply from the second power supply circuit to the various electric loads.

3. The power circuit of a vehicular electronic control unit according to claim 1, wherein the vehicular electronic control unit is housed in a case, the power relay is disposed outside the case, and the second opening/closing element is a transistor that is disposed inside the case.

4. A power circuit of a vehicular electronic control unit comprising a microprocessor that is supplied with power from a vehicle battery and drives various electric loads in accordance with operation states of various input sensors and contents of a program memory, the power circuit comprising:

a constant voltage power circuit that is supplied with power from the vehicle battery via the first or second power supply circuit, and that supplies a prescribed regulated voltage to the microprocessor, devices accompanying the microprocessor including the program memory and a RAM for computation, and input/output interface circuits;

an awakening timer circuit that is supplied with power directly from the vehicle battery, and generates an awakening trigger signal upon a lapse of a prescribed time from a stop

of power supply to the microprocessor;

a first power supply circuit that comprises a power relay having an output contact as a first opening/closing element provided between the vehicle battery and the constant voltage power circuit or between the vehicle battery and the various electric loads, and a coil for closing the output contact, and a reverse-blocking diode connected in series to the output contact, wherein the coil being energized when a power switch that is manipulated to start driving of a vehicle is turned on and kept energized by a power maintenance drive signal generated by the microprocessor even if the power switch is turned off; and

a second power supply circuit comprises a second power relay having an output contact as a second opening/closing element provided between the vehicle battery and the constant voltage power circuit, and a coil for closing the output contact, wherein the coil being energized in response to the awakening trigger signal and kept energized by a power maintenance drive signal generated by the microprocessor,

wherein the reverse-blocking diode is in such a connection relationship as to allow power supply from the first power supply circuit to the various electric loads and to prohibit power supply from the second power supply circuit to the various electric loads.

5. The power circuit of a vehicular electronic control unit according to claim 1, wherein first and second power control

signals are input to the microprocessor, a program as power maintaining means is stored in the program memory, the first power control signal are an opening/closing signal of the power switch, and the second power control signal is the awakening trigger signal generated by the awakening timer circuit, and wherein the power maintaining means generates, when the power switch is opened, a power maintenance drive signal for keeping power supply through the first power supply circuit during a first period that is necessary for save control processing of the microprocessor, and while the power switch is off, the power maintaining means generates a power maintenance drive signal for keeping power supply through the second power supply circuit during a second period for monitoring of a state of a particular input signal.

6. The power circuit of a vehicular electronic control unit according to claim 5, wherein a timer operation start instruction signal is input from the microcomputer to the awakening timer circuit and a program as awakening control means is stored in the program memory, and wherein the awakening control means causes a next awakening operation by causing generation of the timer operation start instruction signal immediately before a stop of generation of the power maintenance drive signal, and prohibits a subsequent awakening operation by stopping generation of the timer operation start instruction signal in accordance with a monitoring result of the particular input

signal.

7. The power circuit of a vehicular electronic control unit according to claim 5, wherein the power maintenance drive signal is output to the first and second power supply circuits from a common output port of the microprocessor and the power circuit further comprises an AND circuit and an OR circuit, and wherein the AND circuit generates a first logical signal when the output contact as the first opening/closing element is closed and the power maintenance drive signal is generated, the OR circuit calculates OR of the first logical signal and a second logical signal that is generated when the power switch is closed, and the coil of the power relay is energized by a resulting OR signal of the OR circuit.

8. The power circuit of a vehicular electronic control unit according to claim 4, wherein the various input sensors are separately connected to the microprocessor through first and second input interface circuits, wherein first-group input sensors that are connected to the first input interface circuit are also connected to the first power supply circuit and are a group of sensors that need not be monitored while the power switch is off, and wherein second-group input sensors that are connected to the second input interface circuit are also connected to the second power supply circuit and are a group of sensors that need to be monitored while the power switch is off or a group of sensors whose current consumption is very small though

they need not be monitored while the power switch is off.

9. The power circuit of a vehicular electronic control unit according to claim 4, wherein a program as alarming/displaying means is stored in the program memory, and wherein the alarming/displaying means causes an abnormality storage circuit to operate and thereby announces occurrence of an abnormality using an alarm/display if the output contact as the first opening/closing element is closed in a state that the power switch is off and the power maintenance drive signal is not generated.